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### ABSTRACT

This report was prepared for the President of the United States by the Council of Environmental Quality. Location, quantities, composition, trends, pollution, and international aspects of ocean dumping are discussed. Also included are alternatives to dumping and legislative control. Recommendations are made dealing with policies, regulations, and further research. (CP)



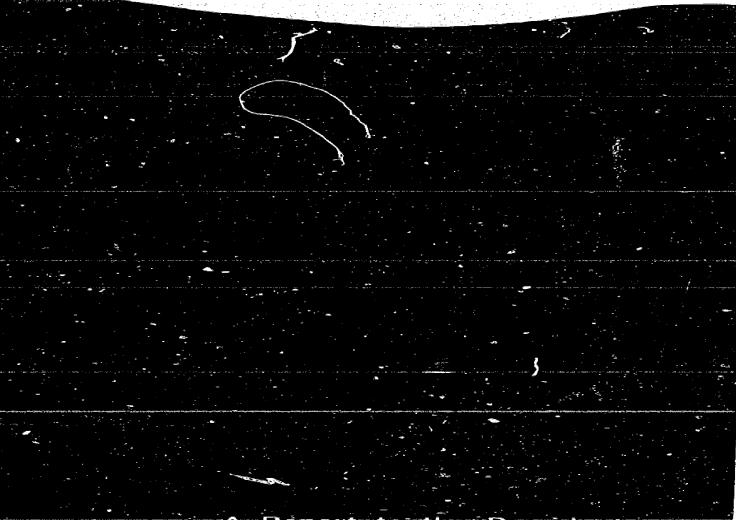
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A Report to the President prepared by the Council on Environmental Quality

October 1970



# OCEAN DUMPING A National Policy

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## Foreword

CEANS—140 million square miles of water surface—cover over 70 percent of the earth. They are critical to maintaining the world's environment, contributing to the oxygen-carbon dioxide balance in the atmosphere, affecting global climate, and providing the base for the world's hydrologic system. Oceans are economically valuable to man, providing, among other necessities, food and minerals.

The coastlines of the United States are long and diverse, ranging from the tropical waters of Florida to the Arctic coast of Alaska. These areas, as biologically productive as any in the world, are the habitat for much of our fish and wildlife. They also provide transportation, recreation, and a pleasant setting for more than 60 percent of the Nation's population.

These waters are also the final receptacle for many of our wastes. Sewage, chemicals, garbage, and other wastes are carried to sea through the watercourses of the Nation from municipal, industrial, and agricultural sources or directly by barges, ships, and pipelines.

Industrial liquid wastes are the largest source of pollution in coastal and estuarine regions, followed by municipal liquid wastes. Agricultural pollutants from land runoff, animal wastes, pesticides, and fertilizers add to the load of wastes ultimately reaching the ocean. Sewage from vessels and spilled oil are two highly visible sources of marine pollution. And a large part of air pollutants eventually end up in the ocean, airectly or through runoff from the land.

The amount of wastes transported and dumped in the ocean is small in terms of the total volume of pollutants reaching the oceans. But in the future the impact of ocean dumping will increase significantly relative to other sources. Although Federal laws on oil and vessel pollution and Federal-State

water quality standards for land-based discharges will reduce the contribution of wastes from these sources, uncontrolled dumping in the ocean could increase greatly.

Recognizing the importance of this problem, the President directed the Council on Environmental Quality to study ocean dumping. In his April 15, 1970, message to the Congress, he asked the Council to work with other Federal agencies and with State and local governments on a comprehensive study that would result in research, legislative, and administrative recommendations.

The Council is grateful to members of a Federal Task Force and individuals from their agencies <sup>2</sup> for preparing material for consideration at meetings of the Task Force, for their review of report drafts, and most important of all, for providing guidance in formulating the recommended policy. Helpful assistance was also received from agencies and individuals in State and local government and from scientists and academicians, including the National Academy of Sciences and the National Academy of Engineering.

The Council is also indebted to a number of excellent studies. These include the studies on the New York Bight, one initiated by the Corps of Engineers and another prepared by an Ad Hoc Committee for the Secretary of the Interior; the 20-city survey of barged wastes, prepared by the Dillingham Corporation under contract to the Bureau of Solid Waste Management; the study of Waste Management Research Needs, by the National Academy of Sciences Committee on Oceanography-National Academy of Engineering Committee on Ocean Engineering; the National Estuarine Pollution Study, by the Federal Water Quality Administration; and an economic study of marine solid wastes disposal, by the Massachusetts Institute of



<sup>1</sup> See Appendix A.

<sup>2</sup> See Appendix B.

Technology under contract to the National Council on Marine Resources and Engineering Development.

Sources of ocean dumping discussed in this

report deserve definition:

• Dredge spoils—the solid materials removed from the bottom of water bodies generally for the purpose of improving navigation: sand, silt, clay, rock, and pollutants that have been deposited from municipal and industrial discharges.

• Sewage sludge—the solid material remaining after municipal waste water treatment: residual human wastes and other organic

and inorganic wastes.

- Solid waste—more commonly called refuse, garbage, or trash—the material generated by residences; commercial, agricultural, and industrial establishments; hospitals and other institutions; and municipal operations: chiefly paper, food wastes, garden wastes, steel and glass containers, and other miscellaneous materials.
- Industrial wastes—acids; refinery, pesticide, and paper mill wastes; and assorted liquid wastes.

- Construction and demolition debris—masonry, tile, stone, plastic, wiring, piping, shingles, glass, cinderblock, tar, tarpaper, plaster, vegetation, and excavation dirt.
- Radioactive wastes—the liquid and solid wastes that result from processing of inradiated fuel elements, nuclear reactor operations, medical use of radioactive isotopes, and research activities and from equipment and containment vessels which become radioactive by induction.

In this report, the Council first summarizes its findings and recommendations for action to control ocean dumping. Chapter I inventories the sites, amounts, and composition of wastes dumped in the ocean and analyzes trends. The effects of these waste materials on the marine environment and man are outlined in Chapter II. Chapter III discusses alternatives to ocean dumping in terms of costs, availability, and effectiveness. The State and Federal agencies and authorities that deal with specific aspects of dumping are discussed in Chapter IV. Chapter V considers the international implications of ocean dumping.